Beko 2010 LED 8 kg Condanser Tumble Dryer Service Handbook

INDEX

1. Technical Specifications
2. Components and Dryer Principals
3. Control System
4. Service test program
5. Fault algorithms
6. Wiring schematics
7. Exploded views
8. Spare part list
9. Demounting the dryer

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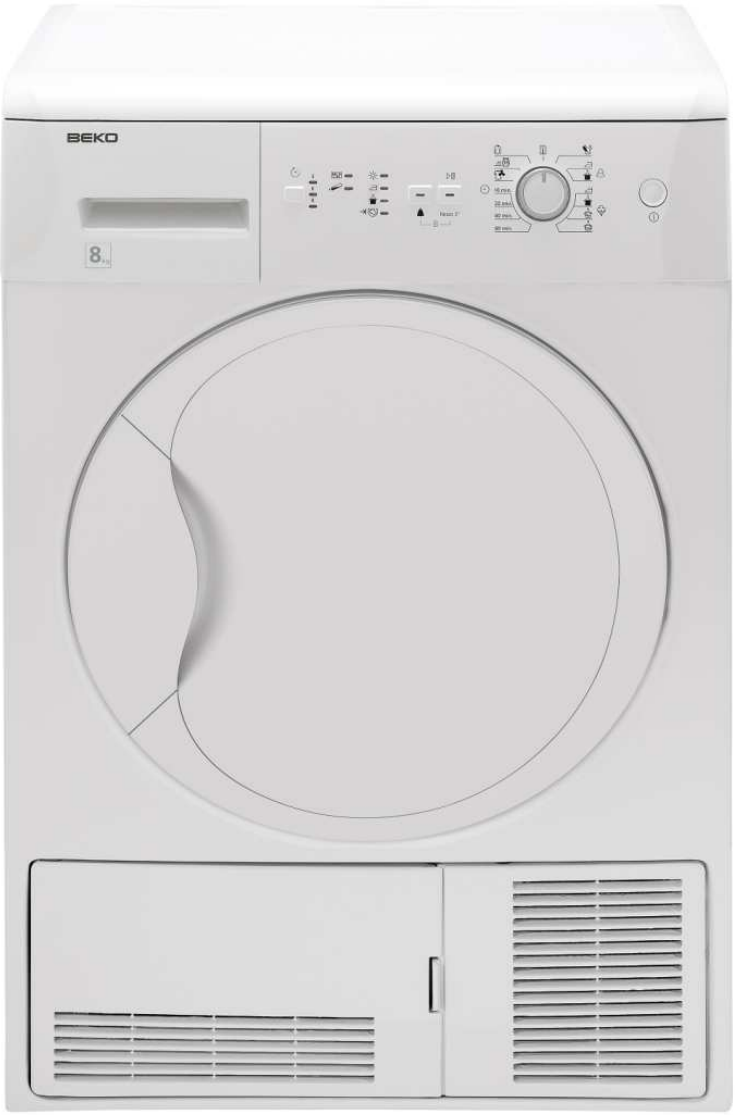


1 Technical Specification:

1.1. Product Definition

1.1.1. Manufacturer : Arçelik A.Ş.
Cerkezkoy - Tekirdag / TÜRKİYE

1.1.2 Model : BEKO DCU8230

1.1.3 Capacity (kg) : 8

1.1.4 Programs (Qty) : 10 sensor controlled program
4 time program
1 ventilation program (heater off)

1.2. Dimensions

1.2.1. Height (mm) : 846

1.2.2. Depth (mm) : 598

1.2.3. Width (mm) : 595

1.3. Package

1.3.1. Material : PE bag (Shrink-pack)

1.3.2. Supporter : Polystrofoam / Wood

1.3.3. Dimensions :

Height (mm) : 880

Depth (mm) : 660

Width (mm) : 650

1.4. Weight

1.4.1. Unpacked (kg) : 38

1.4.2. Packed (kg) : 40

1.5. Working Condition

1.5.1. Temperautre :

Min. room temperature : 5°C

Max. room temperature : 35°C

1.5.2. Humudity : %95 RH

1.6. Electrical Specification

1.6.1. Voltage (V / Hz) : 230-240 V / 50 Hz

1.6.2. Power (kW) : 2,5 kW

1.6.3. Current (A) : 11

1.7. Power Cord

1.7.1. Type : 3 x 1.5 mm2 Cord Copper wire

1.7.2. Insulation : TS 9760 H05V2V2-F 3G1,5mm^2

1.7.3. Plug : Earthed ,PVC injected

1.7.4. Length (mm) : 1605

1.8. Motor

1.8.1. Type : 2 – phase asenkron

1.8.2. Power (W) : max 250

1.8.3. Main Winding (ohm) : 19,5± 5%

1.8.4. Auxillary Winding(ohm) : 19,5± 5%

1.8.5. Motor speed (7 kg (rpm)) : 2750

1.8.6. Drum speed (rpm) : 52 ± 2

1.8.7. Insulation : Sınıfı : F

1.8.8. Run capacitor : 9 mF ± %5

1.9. Heater

1.9.1. Type : Open wire spiral heating element

1.9.2. Nominal Power&Voltage(W) : 230Vac, 1600+700 = 2300 ± %5

1.9.3. Resistance(ohm) : 1600 W 1. level power (32.41 ohm± %5)

: 700 W 2. level power (73,67 ohm± %5)

Warning: NTC (regulating thermistor) is damaged, change the heating element completely. Also check whether the motor or the fan is blocked or the belt is broken.

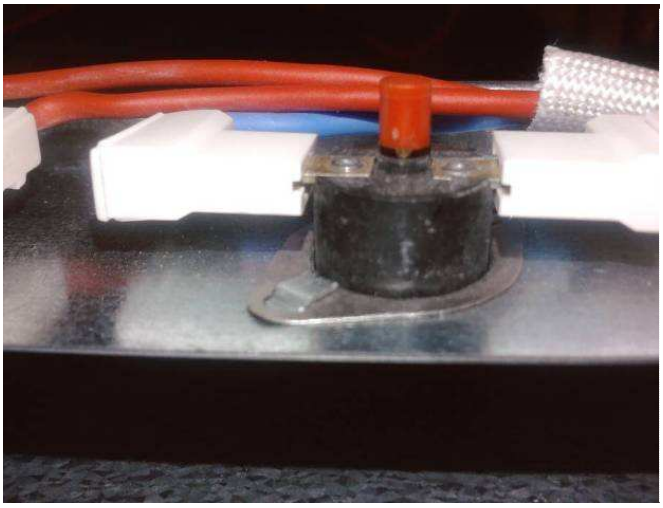
1.9.4. Manual resetting thermostat : 160℃ ±3℃

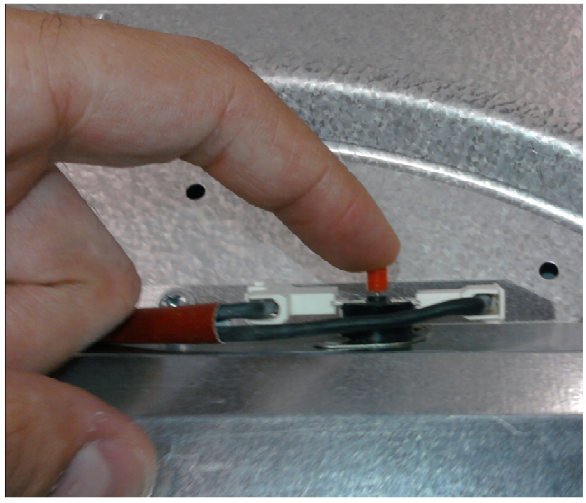
Rating : 250Vac – 16A

Type : ELTH 261PB

NOTE: If the heater does not work because of manuel resetting thermostat is open curcuit, do not change heater with the new one. You should do the following operation that described below.

With the multimeter manual resetting thermostat is checked from the terminals while heater is on the dryer. If manual resetting thermostat is open curcuit, the button is up and the heater does not work. If the button is up position,push the button down,and measure the thermostat and be sure that it is short circuit.





1.9.5. NTC (regulating thermistor) : 19.500 ohm @ 25℃
Type : ELTH 279

1.10. Door NTC

Door NTC (ohm) : 12.000 ohm @ 25℃

1.11. Body :

1.11.1. Material : Sheet metal
1.11.2. Finish : Acyrlic powder paint

1.12. Drum :

1.12.1. Material : Aluzinc/Stainles steel
1.12.2. Volume (lt) : 118
1.12.3. Drum speed(rpm) : 54±2
1.12.4. Front door opening (mm) : 395x320
1.12.5. Proces air flow (m^3/h) :190
1.12.6. Maximum loading Capacity:
Cotton(kg) : 8
Delicate, Synthetic (kg) : 4

1.13. Control System Specifications :

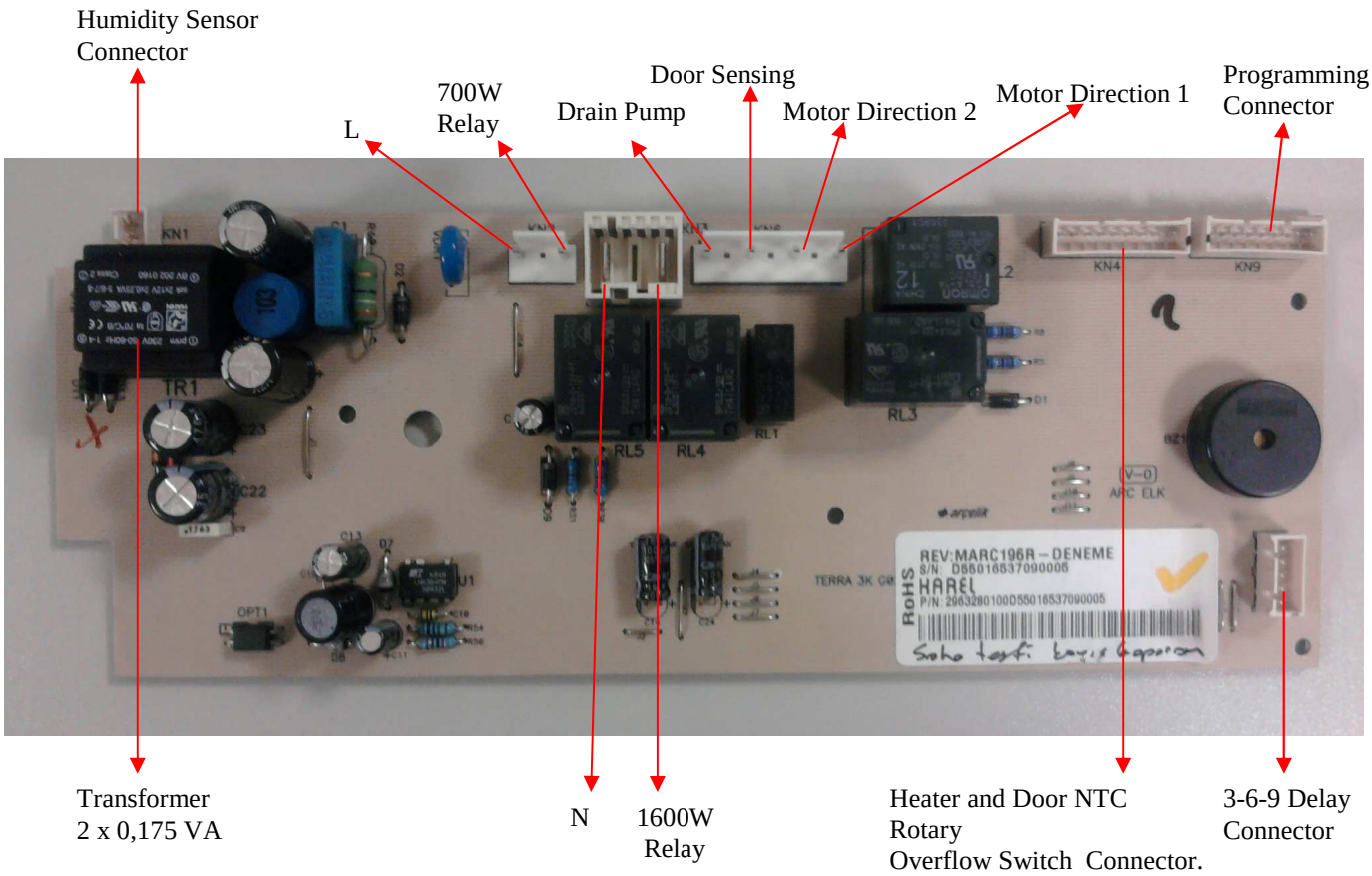
1.13.1. On/off Button : 250 V, 16 (4)A
1.13.2. Door Switch : 250 V, 3 (1)A veya 16(4)A
1.13.3. Suppression Filter **:** 0,15 uF(X1) + 1Mohm + 2x0.027uF(Y2)
1.13.4. Program Timer **:** Electronic Control Card 220 -240V , 50 Hz

1.14. Pump

1.14.1. Number of turns:2x3250
1.14.2. Wire diameter:0,1 mm
1.14.3. Resistance:956 Ω± %8
1.14.4. PCT C870 Epcos
1.14.5. PA6/66 Grilon TS V0,UL 94V-0,GW-650℃
1.14.6. PA6 Latamid 6H V0, UL 94V-0, GW-650℃

2. Components and Dryer Principals:

Electronic Board:



Mechanical Pats (Dynamic System) :
The main motor is attached to the chassis with four special self threaded screws. In order to drive drum a polv-y-V belt ise used between the motor pulley and drum There was used a elastic belt. The drum is made of galvanized sheet steel. The drum group is mounted into the front bearing house and rear bearing steel bracket, which is located rear panel. The heater is mounted to the rear panel wtih two screws.

> **It is advised that the elastic Poly-V belt will be assembled max 3 times. Due to damage on the belt on assembling, after 3 times please change the Poly-V belt also.**

Temperature Sensor (NTC):
Two NTC temperature sensor are used on electronic controlled dryers, one is located after the door filter in suction canal, other is located in the heater. As the temperature of the surrounding of NTC increases, its resistance decreases. At fixed temperature NTC will always have a specified resistance within the tolerance. With the aid of this principle operates until the desired temperature is reached. In this way, the selected program completes properly each time in accordance with the program set an auxiliary function neither selected an ıs nor influenced by air temperature etc.

Humidity Sensor:
Humidity level will be measured by the resistance of clothes. With this property of the humudity sensor, its possible to check and control the humudity level precisely. It is driven by macro.

Heater (Open spiral wire):
A 2300W two circuit open spiral wire type heater is driven by the 2 relays. A manual resettable thermostat is used on these heater, in order to provide IEC safety rules accordingly. This manual resettable thermostat cut the heater power at 160℃ and can be resetted by the pressing the button on thermostat, so heater can be used after a failure bacause of thermostat is open curcuit.

The second temperature regulating element on the heater is NTC. When the desired temperatures is reached, electronic control card reads the resistance of NTC and if the prescribed resistance (and hnce temperature) is reached, the heater is switched off.

This mechanical thermostat operates only;

Locked tumble,
Locked rotor,
Broken fan,
Filter and condenser is full, conditions.

Warning: When NTC is broken down, the heater is changed by the new heater. If thermostat is open curcuit, the same heater will be used by pressing the button on thermostat.

Door Lock :
Locking and unlocking mechanism of the door lock used in the dryer is a mechanical type of the door lock. When the door pushed, the door is locked and the door is closed. When the pull from the handle of the door, it will be open with a suitable force.

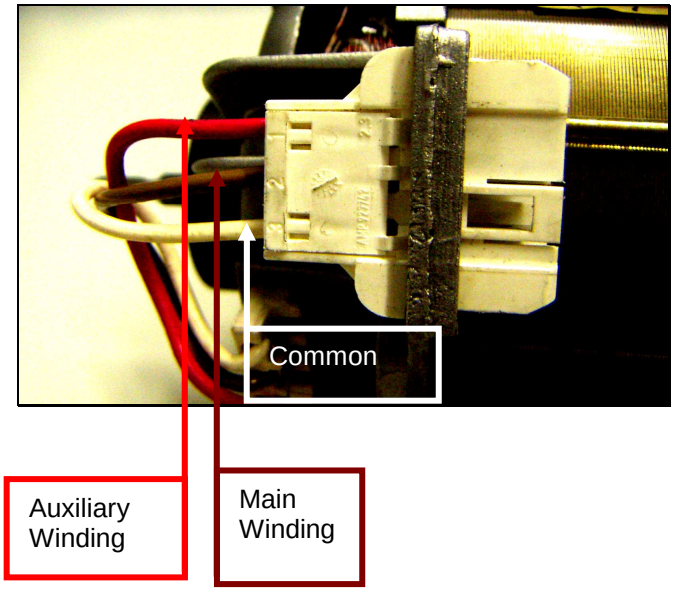
Especially, door lock and hinge sould be checked if there is a locking problem.

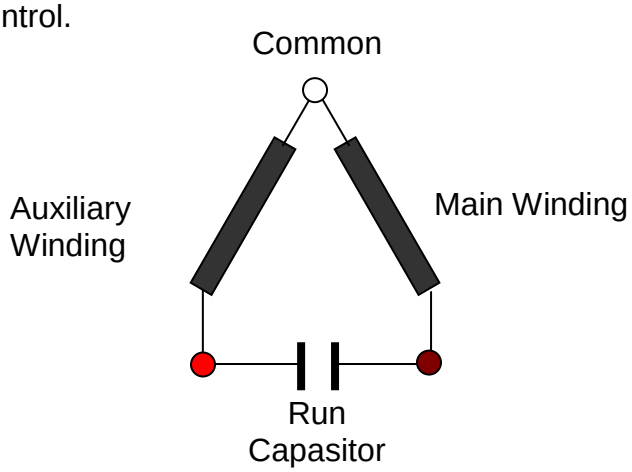
Door Switch :

The current is sent to electronic card and motor by the door switch. By this way when door is opened due to any reason, motor stops automaticlly. However because of EN&IEC safety rules, when the door is closed again, motor does not start. It is necessary to press start/pause/cancel button to restart dryer.

Motor:

Tumble and fan turns via 2 poles asenkron motor. Motor turns 2750 prm ans has a 9 uF capacitor. Asenkron motor is controled by two Control panel two relays one of them for direction, other one is for energy that placed in control.

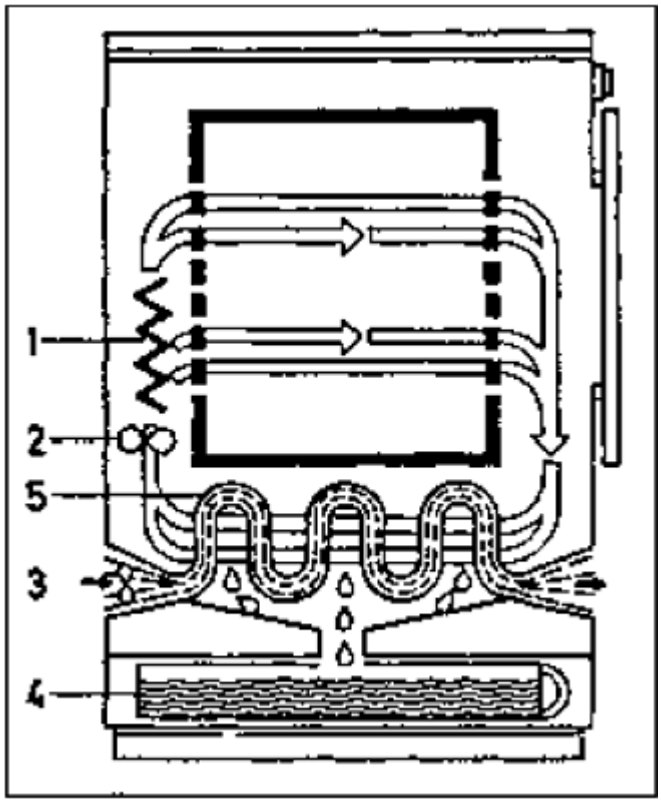




Dryer Principals:

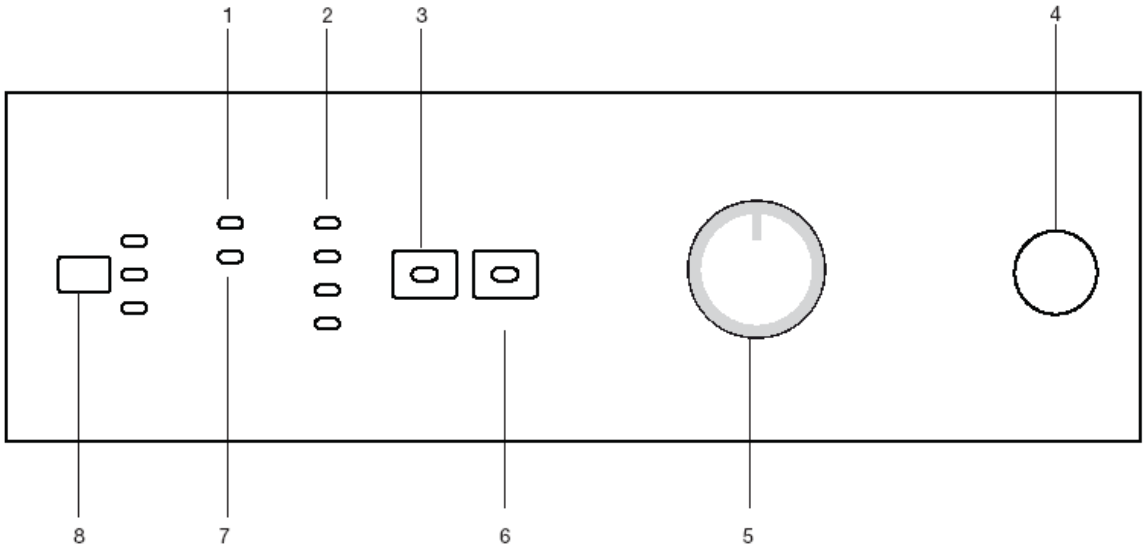
The air heated by the heaters, is directed to the drum and gets moisture of the laundry.
After crossing from the filters, the air pass through the condenser, and condenses.
Then the air is heated again, this circulation continues until the drying process finished.
Condensing occurs by cooling the air. To achieve that, a secondary fan circulates the air in the condenser. Because of the temperature difference between cooling air and heated air, condensing process accomplishes.

The condensed water is directed to the water tank by the pump for tank up version.



- Heater
- Process Fan
- Cooling Fan
- Condensed Water
- Condenser

3. Control System:



1. Filter cleaning warning light
Warning light turns on when the filter is full.
2. Programme follow-up indicator
Used to follow-up the progress of the current programme.
3. Cancel audio warning
Used to cancel the audio warning given at the end of the programme.
4. On/Off button
Used to turn on and off the machine.
5. Programme selection knob
Used to select a programme.
6. Start/Pause/Cancel button
Used to start, pause or cancel the programme.
7. Water tank warning light*
Warning light turns on when the water tank is full.
8. Time delay selection button*
Used to set the time delay.
* It may change according to the specifications of your dryer

Preparing the machine

1. Plug in your machine.
2. Place the laundry in the machine.
3. Press the "On/Off" button.

- Pressing the "On/Off" button does not necessarily mean that the programme has started. Press "Start/Pause/Cancel" button of the machine to start the programme.

Programme selection

Decide the appropriate programme from the table below which includes drying temperatures in degrees. Select the desired programme with the programme selection button.

Extra dry	Dry at high temperature only for cotton laundry. Thick and multi layered laundry (E.g.: towels, linens, jeans) are dried in a way that they do not require ironing before placing in the wardrobe.
Cupboard dry	Normal laundry (E.g.: tablecloths, underwear) are dried in a way that they do not require ironing before placing in the drawers.
Ready to wearPlus	Normal laundry (E.g.: tablecloths, underwear) are dried in a way that they do not require ironing before placing in the drawers, but more than those in the ready to wearoption.
Iron Dry	Normal laundry (E.g., Shirts, dresses) are dried ready to be ironed.

- For further programme details, see, "Programme Selection Table"

Main programmes

Depending on the type of laundry, the following main programmes are available:

Cottons

You can dry your durable laundry with this programme. Dries at high temperature. It is recommended to use for your cotton items (such as bed sheets, quilt cover, underclothing, etc.).

Synthetics

You can dry your less durable laundry with this programme. It dries at a lower temperature compared to the cottons programme. It is recommended for your synthetic laundry (such as shirts, blouses, synthetic/cotton blended laundry, etc.).

- Do not dry curtains and lace in your machine.

Anti-creasing

A 2-hour anti creasing programme to prevent laundry from creasing will be activated if you do not take the laundry out after the programme is over. This programme rotates the laundry in 10-minute intervals to prevent creasing.

Special programmes

For special cases, there are also extra programmes available:

- Additional programmes may differ according to the model of your machine.

Xpress 35

You can use this programme to dry the cottons that are spun at high speeds in your washing machine. It can dry your 2 kg Cotton laundry (3 Shirts / 5 T-Shirts) within 35 minutes.

- In order to obtain better results from the dryer programmes, your laundry must be washed with suitable programme and spun at the recommended spin speeds in your washing machine.

Shirt

Dries the shirts in a more sensitive way so that they are less creased and ironed easily.

- Shirts may contain little amount of dampness at the and of the programme. It is advised not to leave the shirts in the dryer.

Jeans

You can use this programme to dry the jeans that are spun at high speeds in your washing machine.

- Review the relevant part of the programme table.

•Delicates

You can dry at a lower temperature your very delicate laundry (silk blouses, fine underwear, etc.) that are suitable for drying or laundry which is advised to be hand-washed.

- It is recommended to use a cloth bag to avoid certain delicate garments and laundry from getting creased or damaged. Take your garments immediately out of the dryer and hang them after the programme ends in order to prevent them being creased.

•Ventilation

Only ventilation is performed for 10 minutes without blowing hot air. You can air your clothes that have been kept at closed environments for a long time thanks to this programme to deodorize unpleasant odours.

•Timer programmes

You can select one of the 10 min., 20 min., 40 min. and 60 min. timer programmes to achieve the desired final drying level at low temperatures. Programme dries at the selected time regardless of the drying temperature.

Auxiliary function

Cancel audio warning

Your dryer will give an audio warning when the programme comes to an end. If you do not want to hear the audio warning, press "Cancel Audio Warning" button. The relevant light will turn on when this button is pressed and an audio warning will not be given when the programme comes to an end.

- You can select this function either before or after the programme starts.

Warning indicators

- Warning indicators may differ according to the model of your dryer.

Filter cleaning

A warning light will turn on to remind filter cleaning after the programme finishes.

- If the filter cleaning warning light lights up continuously, please refer to, "Suggested solutions for problems".

Water tank

Warning light starts flashing when the tank is filled with water. The dryer stops operating if the warning light turns on when a programme is running. Drain the water in the water tank to restart the dryer. Press "Start/Pause/Cancel" button to start the programme after you have emptied the water tank. The warning light turns off and the programme resumes operating.

Time delay

If you wish to dry your clothes at a later time, thanks to the time delay function, you can delay the programme start up to 3 hours, 6 hours or 9 hours.

1. Open the loading door and put the laundry in.
   - Make sure that all air outlets are open, door filter is cleaned and the water tank is empty.
2. Set the drying programme and, if required, the auxiliary functions.
3. When the time programming button is pressed once, a 3 hour delay is selected and the relevant led lights. When the same button is pressed again, 6 hours; and if pressed once more, 9 hours delay will be selected. If the time programming button is pressed one more time, time delaying function will be cancelled. Set the time delay as you require.
4. Delayed operation of the selected programme is started by pressing the "Start/Pause/Cancel" button after selecting the time delay.
   - Additional laundry may be loaded / taken out during the time delay period.
   - During the time delay period, laundry is rotated for 4 seconds in every 10 minutes to prevent creasing.

Canceling the time delay

If you want to cancel the time delay countdown and start the programme:

1. Press "Start/Pause/Cancel" button for about 3 seconds.
2. Press "Start/Pause/Cancel" button to start the programme right away.

Starting the programme

1. Press "Start/Pause/Cancel" button to start the programme.
2. Light of the "Start/Pause/Cancel" button will turn on to indicate that the programme has started.

Progress of programme

Progress of a running programme is shown through the programme follow-up indicator. At the beginning of every programme step, the relevant indicator LED will light up and light of the completed step will turn off.

"Drying":

- Drying level will be illuminated during the whole drying process until the drying degree reaches "iron dry".

"Iron Dry":

- Starts to illuminate when the drying degree reaches "iron dry" step and remains illuminated until the next step.

"Cupboard dry":

Starts to illuminate when the drying degree reaches "Ready to wear" step and remains illuminated until the next step.

"Final / Anti-creasing":

- Illuminates when the programme comes to an end and anti-creasing function is activated.

- If more than one LED light up or flash concurrently, it means there is malfunctioning or a failure (please see, Solution suggestions for problems).

Changing the programme after it has started

You can use this feature to dry your clothes under higher or lower temperatures after your dryer has started.

For example;

1. Press and hold the "Start/Pause/Cancel" button for about 3 seconds to "Cancel" the programme in order to select "Extra Dry" programme instead of "Iron Dry" programme.
2. Select the "Extra Dry" programme by rotating the programme selection button.

3. Press "Start/Pause/Cancel" button to start the programme.

- Press "Start/Pause/Cancel" button for 3 seconds to cancel the programme or turn the programme selection knob in any direction to end the programme while the machine is running. Water tank and filter cleaning warning lights turn on to warn the user when the programme is cancelled by pressing the "Start/Pause/Cancel" button for 3 seconds. However, the warning lights do not turn on when the programme is cancelled by turning the programme selection knob. Only the drying light turns on and the machine remains in hold until a new programme is selected and the "Start/Pause/Cancel" button is pressed. Child-proof lock of the machine should not be active in order to perform these two operations. If the child-proof lock is active, deactivate it before performing these operations.

Adding/removing laundry in standby mode

In order to add or remove laundry after the programme starts:

1. Press the "Start/Pause/Cancel" button to switch the dryer to "Pause" mode. Drying process will stop.
2. Open the door at "Pause" position and close it again after adding or taking out laundry.
3. Press "Start/Pause/Cancel" button to start the programme.

- Any laundry added after the drying process has started may cause the dried clothes in the machine intermingle with wet clothes and the result will be wet laundry after the drying process is over.
- Laundry may be added or taken out as much as desired during a drying process, but this process will extend the programme duration and increase energy consumption since the drying will be interrupted continuously. Therefore, it is recommended to add laundry before the drying programme has started.

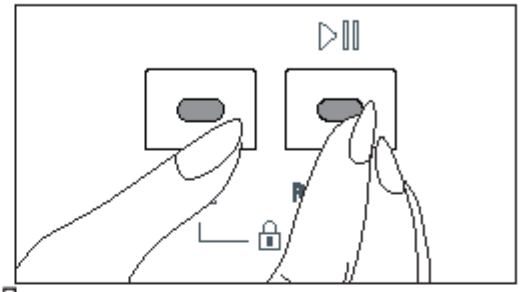
Child-proof lock

There is a child-proof lock to prevent any programme interruption due to the pressing of button while the programme is running. The loading door and all buttons except the "On/Off" button on the control panel are deactivated when the child-proof lock is active.

Press the "Start/Pause/Cancel" and "Cancel audio warning" buttons simultaneously for 3 seconds to activate the child-press lock.

To start a new programme after the programme is over or to interrupt the programme, the child-proof lock should be deactivated. Press the same buttons for 3 sec. again to deactivate the child-proof lock.

- Child-proof lock is deactivated when the machine is restarted by pressing the On/Off button.



- Press the relevant buttons for 3 seconds to activate the child-proof lock. A long beep will be heard and the child-proof lock will be activated. A double beep will be heard if you press any button or turn the programme selection knob while the child-proof lock is active. Press the buttons for 3 seconds to deactivate the child-proof lock. Single beep will be heard and child-proof lock will be deactivated.
- A double beep will be heard if you turn the programme selection knob when the machine is running and the child-proof lock is active. If you deactivate the child-proof lock without returning the programme selection knob to its previous position, the programme will be terminated since the position of the programme selection knob is changed. The drying light turns on and the machine remains on hold until a new programme is selected and the "Start/Pause/Cancel" button is pressed.

Finishing by canceling the programme

A new programme can be selected and started after "Programme cancel" is activated in order to change the drying programme.

To cancel any selected programme:

Press "Start/Pause/Cancel" button for about 3 seconds. The "Filter cleaning", "Water tank" and "End/ Anti-creasing" warning lights will turn on at the end of this period for reminding purposes.

- As the inside of the dryer will be excessively hot when you cancel the programme while the dryer is running, activate the ventilation programme to

cool it down.

End of programme

The "End/Anti-creasing", "Filter cleaning" and "Water tank" warning lights on the programme follow up indicator will turn on when the programme comes to an end. The door can be opened and the machine becomes ready for a second cycle.
Press "On/Off" button to turn off the dryer.

- Final step of the drying cycle (cooling step) is performed without heat application in order to keep the items at a temperature that would not harm them.
- A 2-hour anti creasing programme to prevent laundry from creasing will be activated if you do not take the laundry out after the programme has come to an end.
- If you will not take the laundry out immediately, do not stop the dryer before the drying process is complete.
- Clean the filter after each drying (please see, Filter cleaning).
- Drain the water tank after each drying (please see, Water tank)

4. Service Test Program:

Step 1: Program selector is set as delicates and while pressing the buzzer cancel button, turn on dryer. After 3 seconds service test program starts and buzzer sounds. In this program start/pause/cancel button is used to pass other steps. All leds blink.

Step 2: Push start/pause/cancel button. All leds go off. The drying led is on. Motor turns counterclockwise. Check the if the sensor are open circuit. If yes, the buzzer/cancel led will blink. Unless it is open circuit, the next step won't be activated.

Step 3 : The start/stop/cancel button is pushed. The drying led goes off, and the ready to iron led is activated. Motor stops. After 3 seconds buzzer/cancel led blinks. Till the end of 3 second, the buzzer/cancel led won't blink even if the start button is pushed.

Step 4: The start/stop/cancel button is pushed. The ready to iron led goes off, and the ready to wear dry led is activated. Motor turns clockwise. After 3 seconds buzzer/cancel led blinks. Till the end of 3 second, the buzzer/cancel led won't blink even if the start button is pushed.

Step 5: The start/stop/cancel button is pushed. The ready to wear led goes off, and the end led is activated. Motor turns clockwise. The 2300W heater is on. After 3 seconds buzzer/cancel led blinks. Till the end of 3 second, the buzzer/cancel led won't blink and the next step won't be activated even if the start button is pushed.

Step 6: The start/stop/cancel button is pushed. The end led goes off and the drying led will blink. Motor turns clockwise. The 2300W heater is off. Make the sensor short circuit by touching the sensor plate. Check the sensor if the sensor are short circuit. If yes, the buzzer/cancel led will blink, the buzzer will sound. Unless it is short circuit the buzzer/cancel led won't blink and the next step won't be activated even if the start button is pushed.

Step 7: The start/stop/cancel button is pushed. The drying led goes off and the ready to iron led is activated. Motor turns clockwise. The 1600W heater is on. After 3 seconds buzzer/cancel led blinks. Till the end of 3 second, the buzzer/cancel led won't blink even if the start button is pushed.

Step 8: The start/stop/cancel button is pushed. Turn back to the "step 1".

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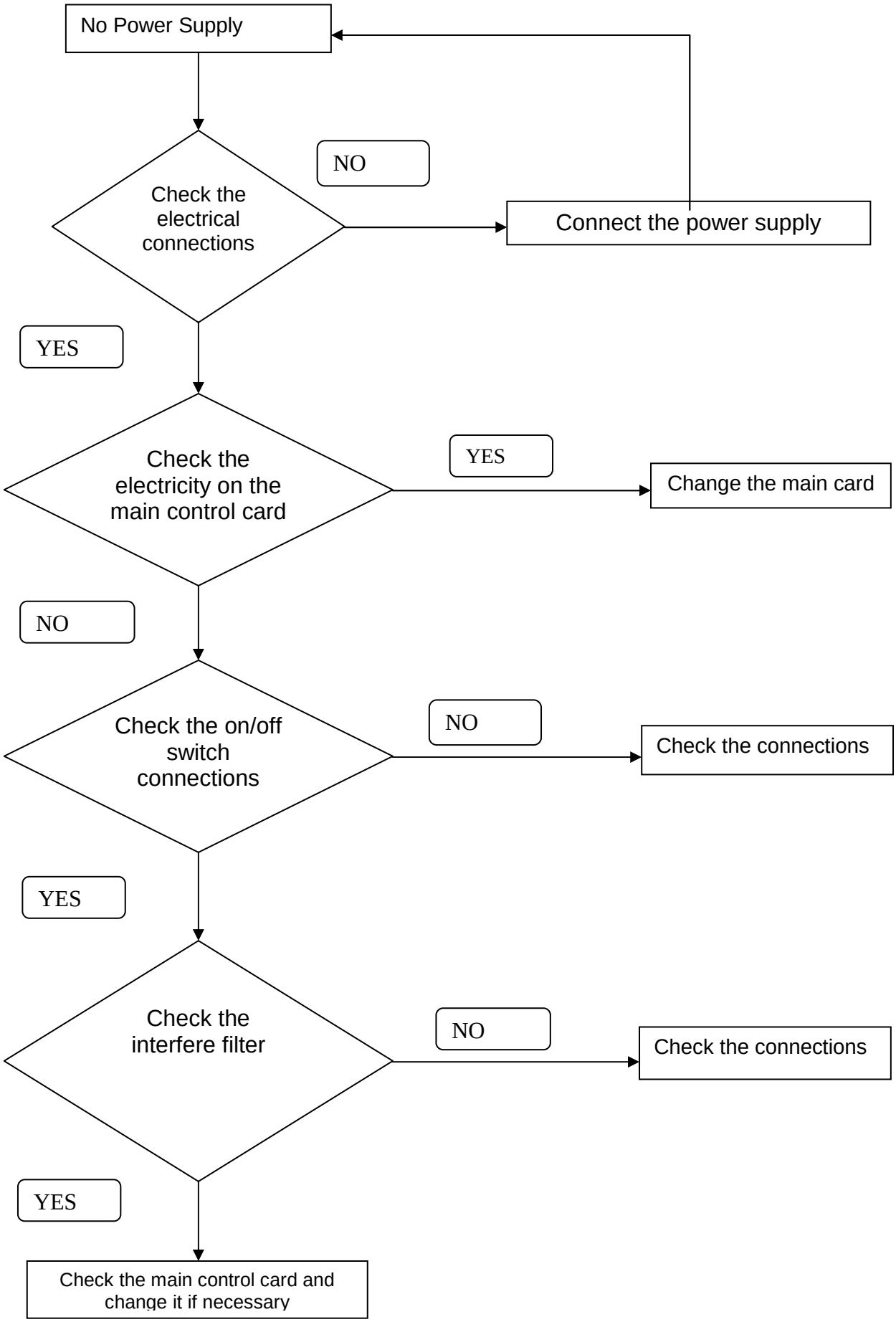
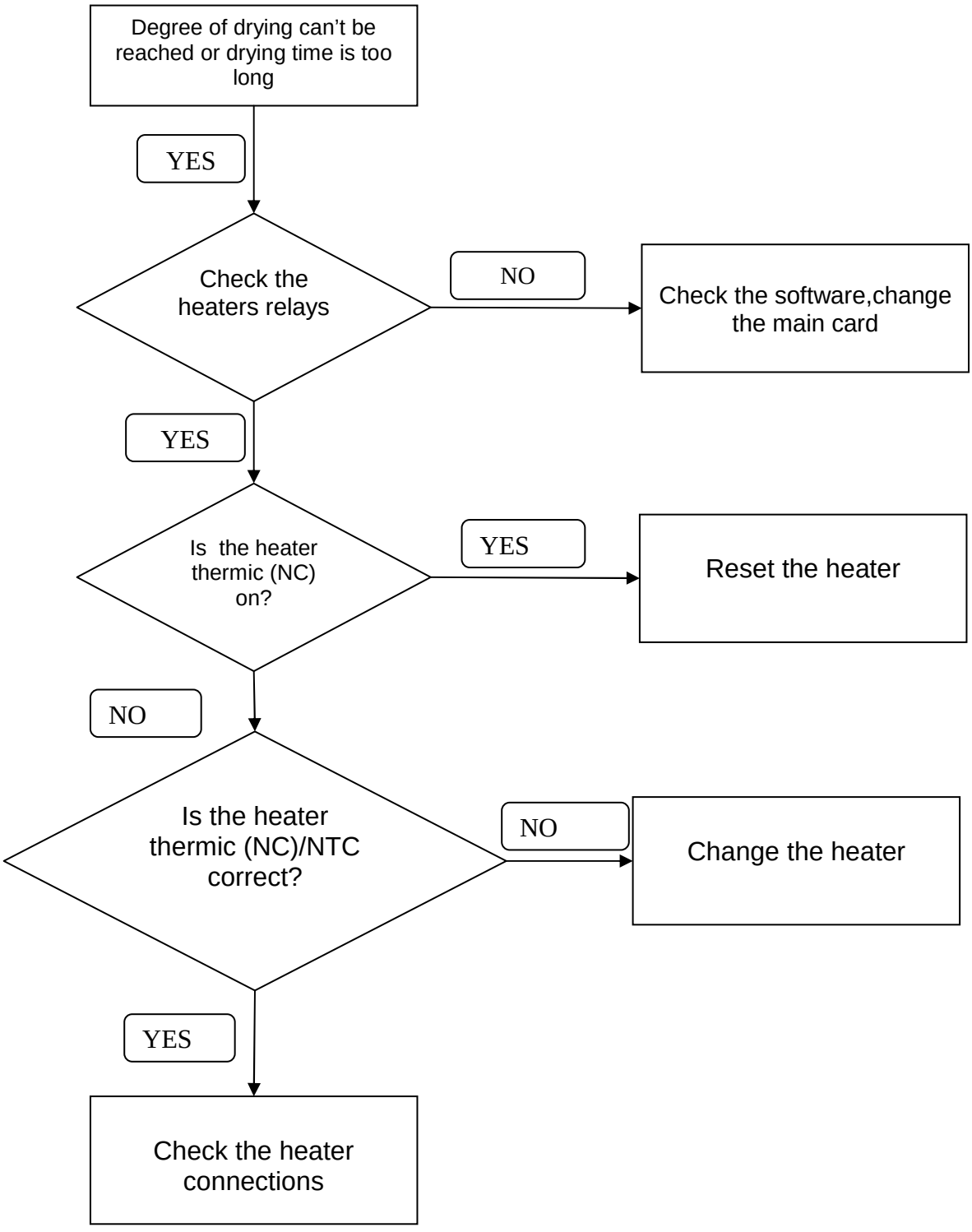
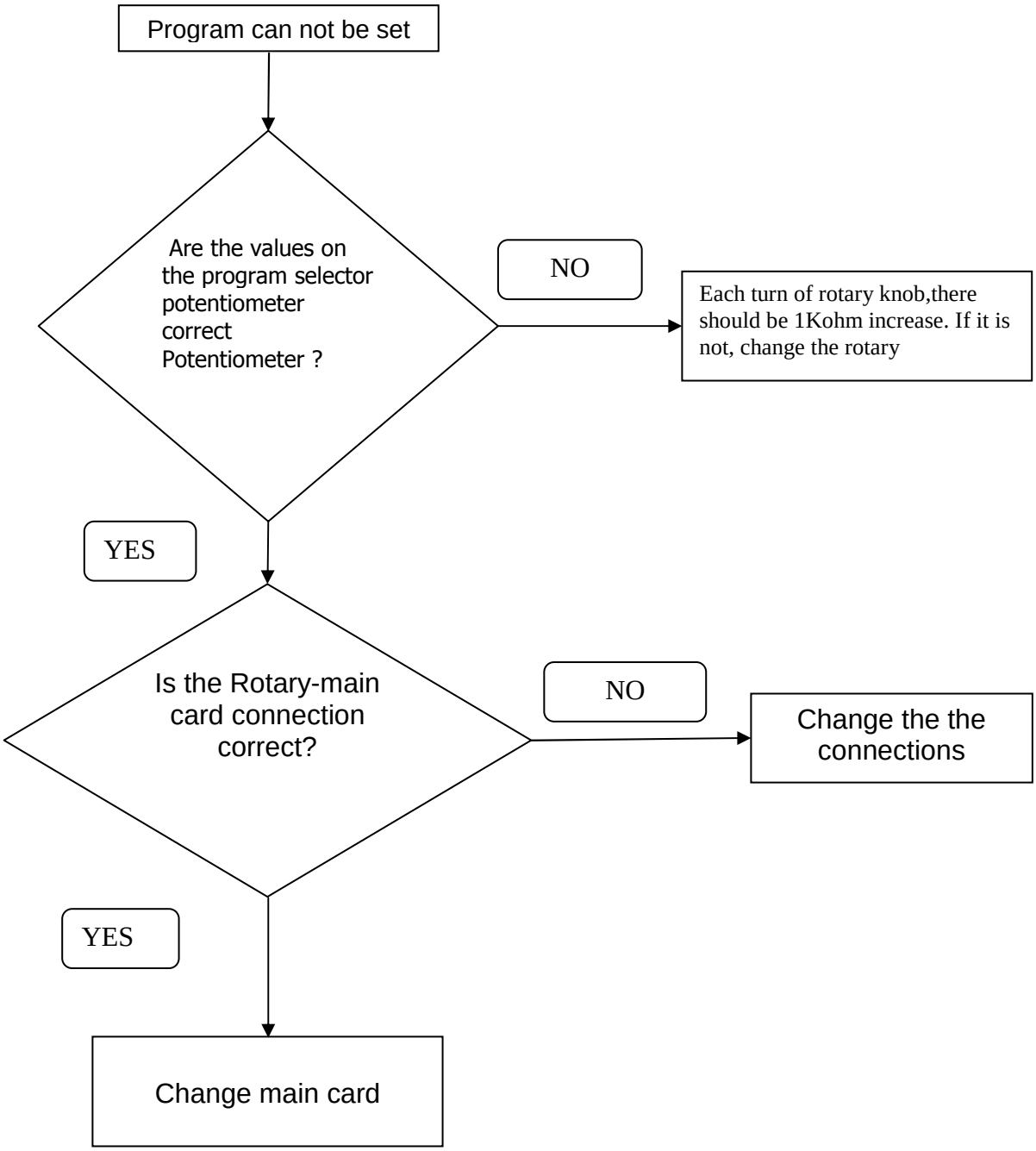
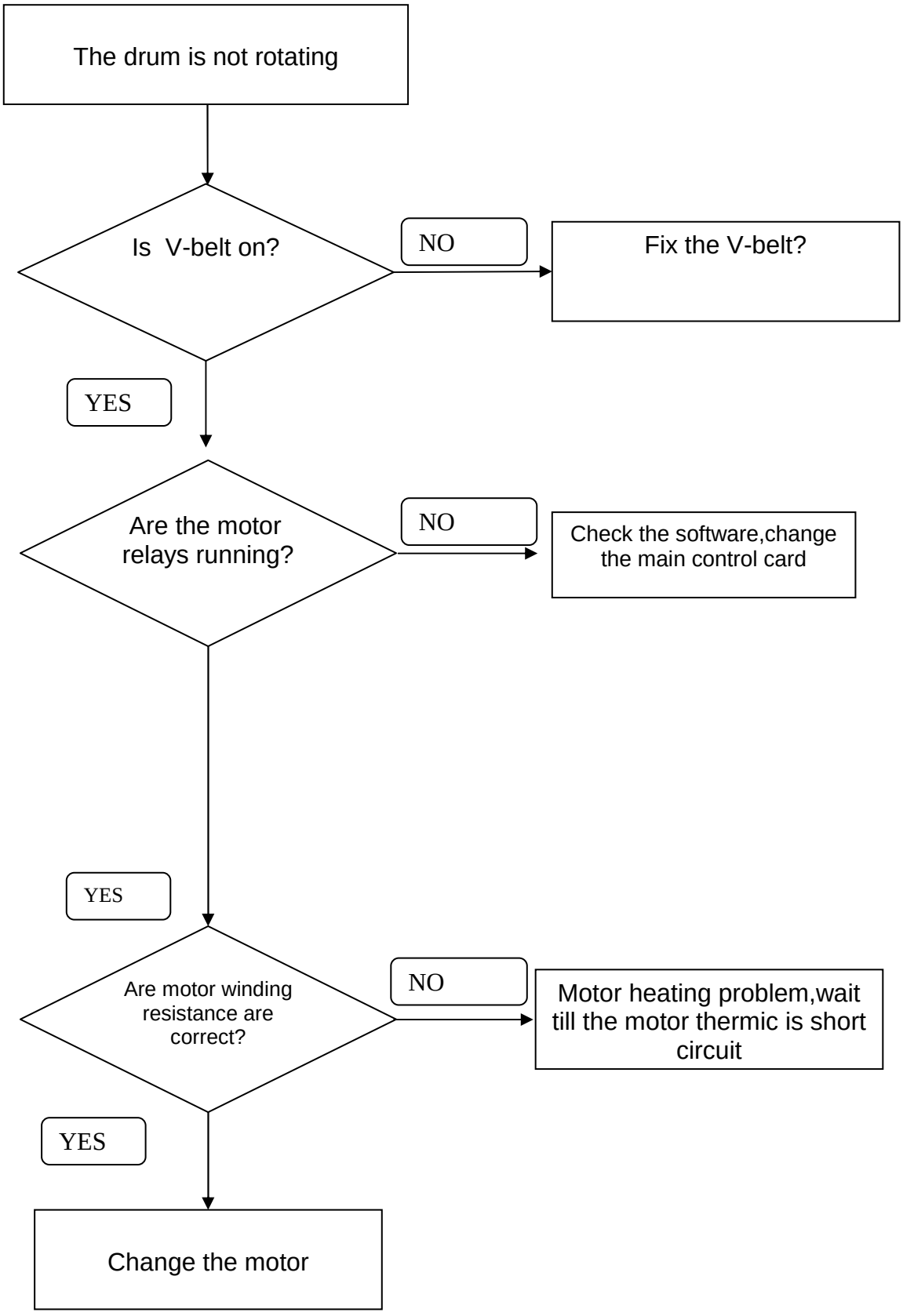
5. Faults Algorithms :

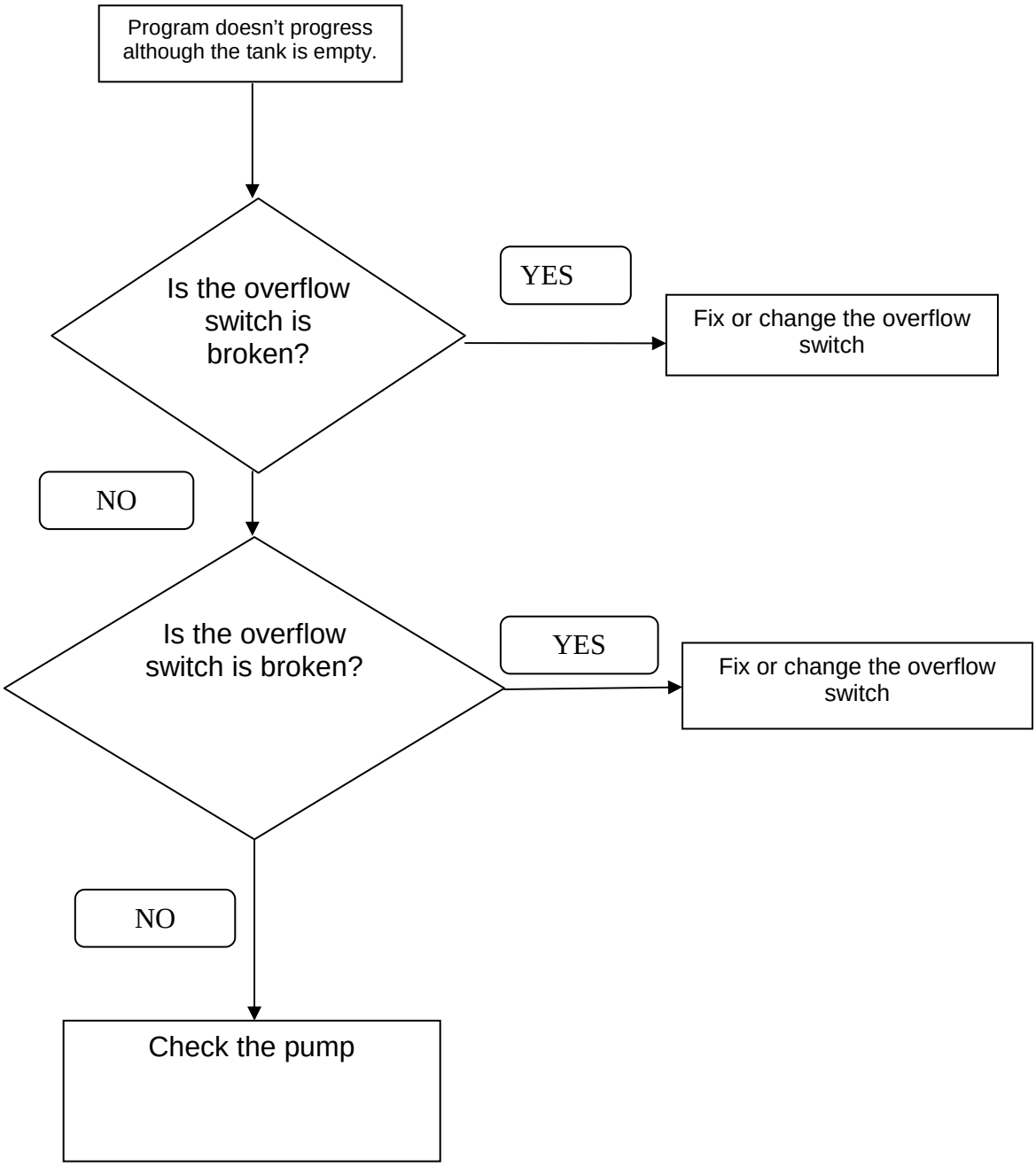




NC = Normal closed short circuit
NO = Normal open short circuit

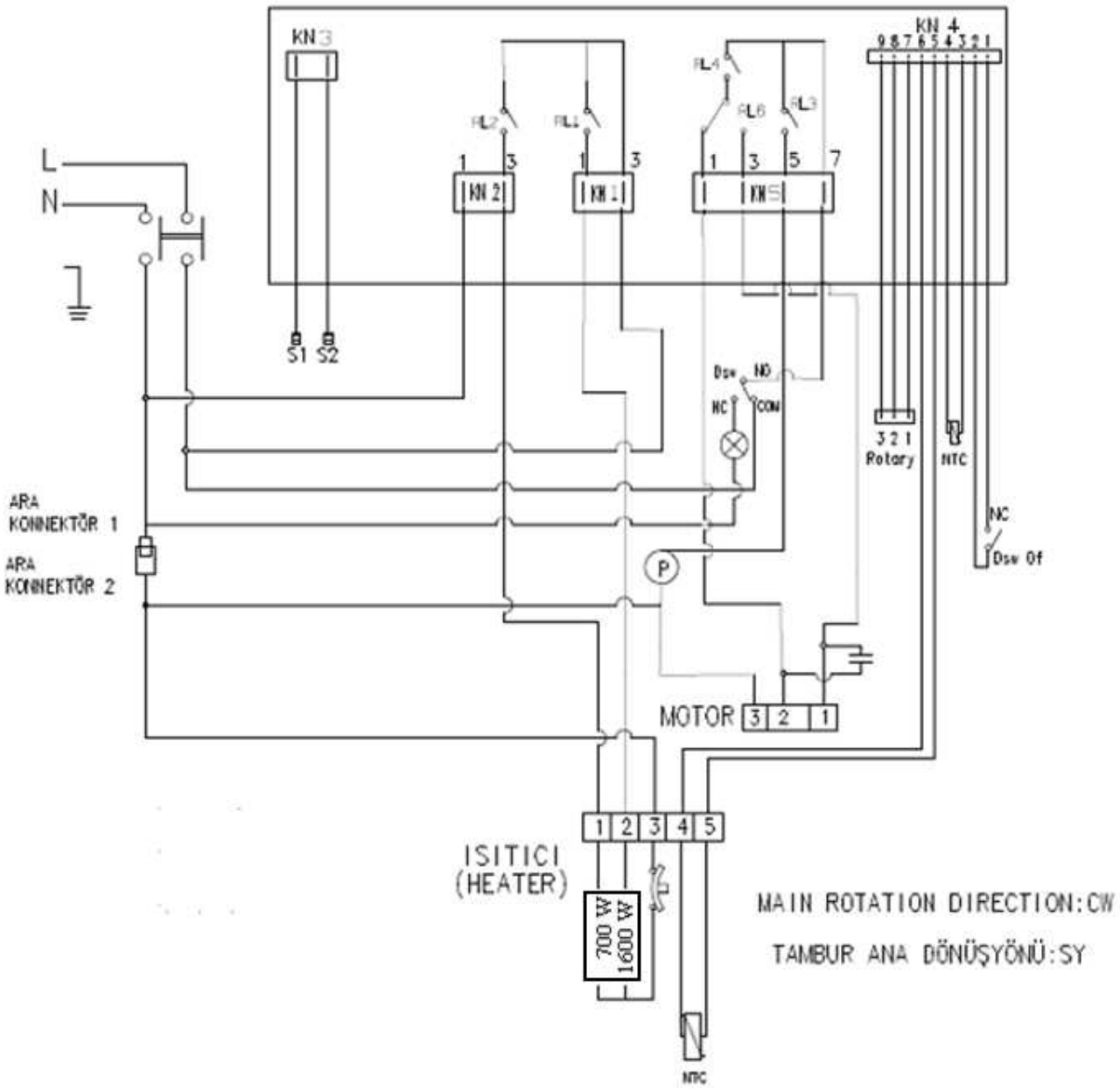

Program can not be set
Are the values on the program selector potentiometer correct Potentiometer ?
NO
Each turn of rotary knob,there should be 1Kohm increase. If it is not, change the rotary
YES
Is the Rotary-main card connection correct?
NO
Change the the connections
YES
Change main card


The drum is not rotating
Is V-belt on?
NO
Fix the V-belt?
YES
Are the motor relays running?
NO
Check the software,change the main control card
YES
Are motor winding resistance are correct?
NO
Motor heating problem,wait till the motor thermic is short circuit
YES
Change the motor

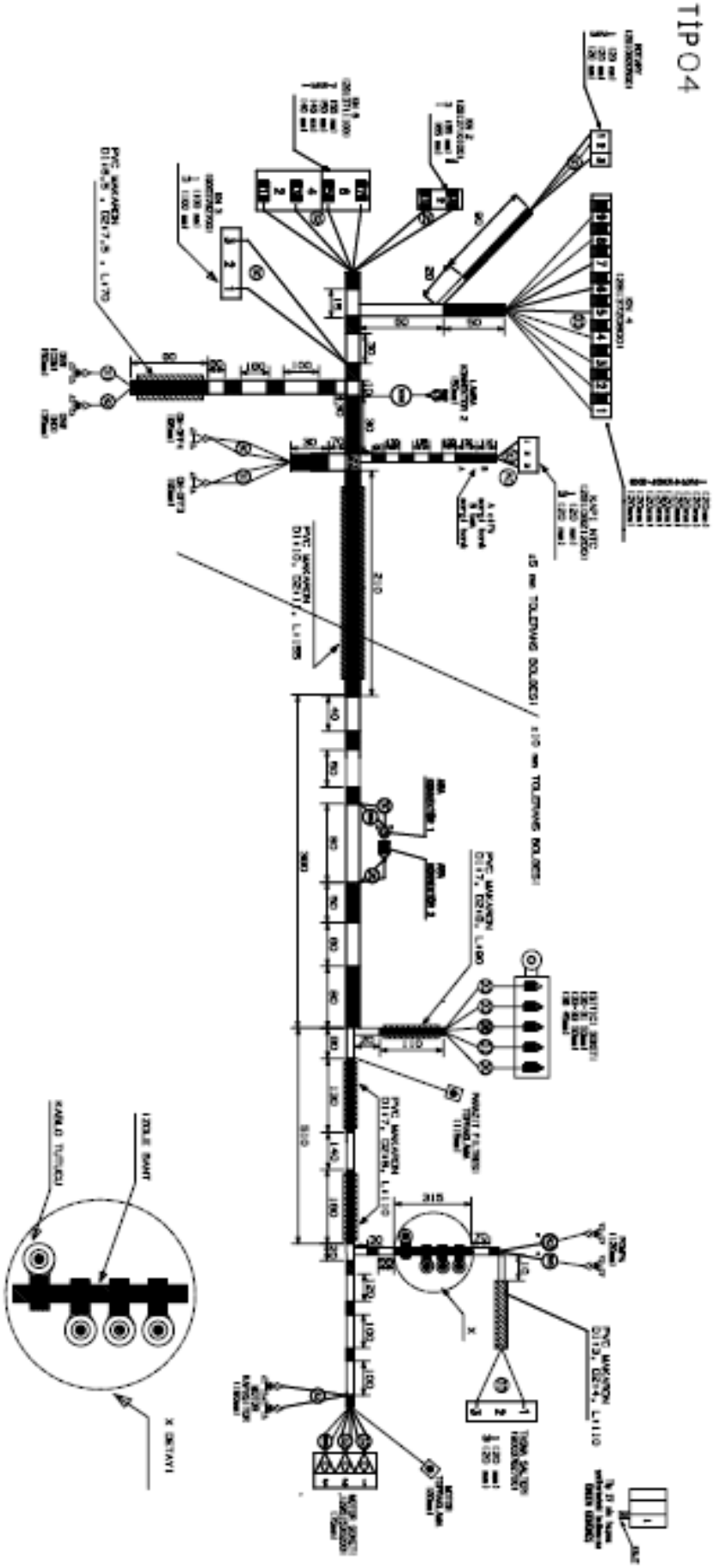

Program doesn't progress although the tank is empty.
Is the overflow switch is broken?
YES
Fix or change the overflow switch
NO
Is the overflow switch is broken?
YES
Fix or change the overflow switch
NO
Check the pump

6. Wiring Schematics:

Beko 2010 Condenser LED Wiring Schematics



Beko 2010 Condenser Cable Schematics



7. **Expoled Views:**
8. **Spare Parts List:**
9. **Demounting:**